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NIXON PEABODY

NO. 6784 P. 2

#9 PB

Docket No. 740107-136

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

7.10.03

In re Patent Application of)
Nobuo SHIMAZU et al.) Group Art Unit: 2881
Application No.: 09/732,928) Examiner: HUGHES, J.
Filed: December 11, 2000)
For: ELECTRON BEAM PROXIMITY)
EXPOSURE APPARATUS AND MASK :
UNIT THEREFOR)

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to: Mail Stop Non Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, or being facsimile transmitted to the USPTO at (703) 872-9318 on July 9, 2003.

April Campbell
April Campbell

REQUEST FOR RECONSIDERATION

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Sir:

The Examiner's Office Action dated April 14, 2003 has been received and its contents reviewed. For the reasons explained in detail below, the Applicants respectfully request reconsideration and withdrawal of the outstanding objections and rejections of record.

With regard to the Examiner's objections to the declaration for not having an Application Data Sheet provided therewith and to the drawings for not properly labeling Figures 1, 2A, 2B, 3A, 3B and 3C as "Prior Art," please find attached a copy of the Application Data Sheet submitted with the Declaration form PTO/SB/01A on May 29, 2001. A copy of the Transmittal Form and USPTO date stamped postcard indicating receipt of the Application Data Sheet on May 29, 2001, are also enclosed. Additionally, filed on even date herewith are three drawing sheets containing Figures 1,

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2A, 2B, 3A, 3B and 3C which have been properly labeled as "Prior Art" as required by 37 C.F.R. § 1.83 and MPEP § 608.02.

With regard to the Examiner's rejections of:

Claims 1, 5 and 9, under 35 U.S.C. 102(e), as being anticipated by the teachings of Nishi ('022), and

Claim 2-4 and 6-8, under 35 U.S.C. 103(a), as being obvious in view of the teachings of Nishi ('022),

each of these rejections is respectfully traversed.

The presently claimed invention requires "a mask substrate on which a plurality of masks with apertures are formed" as in claim 1 or "a single mask substrate on which a plurality of the masks are formed" as in claim 9 in an electron beam source proximity exposure apparatus. A detailed review of the Nishi reference reveals that the Examiner has inappropriately confused the teachings of the patentee to arrive at a conclusion that each of the features of the claimed invention are taught by the Nishi reference.

Specifically, in describing the electron beam exposure apparatus of Nishi (with reference to column 3, lines 51-67), the Examiner begins by discussing the patentee's description of the prior art in which a conventional step and scan exposure technique is elaborated upon (with reference to column 1, line 44, to column 4, line 11) and the use of a double exposure method for KrF and ArF laser (optical) exposure apparatus (see, column 4, line 60, to column 6, line 16). It is of note that that the patentee, in the discussion of the prior art, indicates the strengths and weakness of the optical illumination exposure systems, using KrF or ArF laser light, as well as the deficiencies of an electron beam proximity exposure apparatus. Particularly, Nishi (column 4, lines 5-11) states:

"The electron beam exposure apparatus is inconvenient in that the throughput is extremely lowered as compared with the light beam exposure apparatus. In reality the development of the next generation machine, which based on the principal viewpoint of the use of a short wavelength, does not proceed so well." (Emphasis added)

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The patentee makes a very specific point of the fact that the electron beam exposure methods, with regard to the step and scan techniques, are clearly inferior, undesirable and not equivalent to the optical illumination exposure systems of the prior art.

With this as background, Nishi teaches an exposure system which is based (broadly and specifically) upon the use of an "illumination light beam" in each embodiment of his exposure system (see column 6, line 49, to column 13, line 16). The Applicants assert that the Examiner, in referring to the undesirable electron beam exposure of the prior art discussion of Nishi and then combining this feature with the illumination light beam exposure systems of the patentee's apparatus (see the portions of columns 6, 7, 28, 35 and 37 referenced by the Office Action), has improperly combined the teachings of Nishi in an attempt to show that the patent contains each and every feature of the presently claimed invention. Further, since the prior art discussion of Nishi makes it unequivocably clear that e-beam exposure apparatus is not the equivalent to an optical illumination (laser light) exposure apparatus and has distinct processing drawbacks regarding throughput, the patentee does not provide any suggestion to modify or replace the his illumination (laser light beam) exposure apparatus with an e-beam exposure system.

If the rejections based upon Nishi are to be maintained by the Examiner in the next office action, it is respectfully requested that the Examiner point to specific areas in the Nishi patent where an e-beam exposure apparatus is used in his disclosed method and apparatus as asserted by the Examiner in the Office Action of April 14, 2003.

Further, the Applicants note that, besides not teaching an e-beam exposure apparatus for use in the Nishi exposure apparatus and process, this reference also fails to teach a (single) substrate having plural masks formed thereon as presently claimed. Instead, the patentee describes (see Figures 2, 10, 22-24; column 20, line 61, to column 21, line 21) a first mask R1 having a mask pattern thereon, a second mask R2, having a second (e.g., perpendicular) mask pattern thereon, supported on a separate

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mask stage RST, i.e., reticle stage. Again, the Applicants respectfully request, if the rejections based upon the Nishi reference are to be maintained, that the Examiner, in the next office action, specifically point to sections in the Nishi patent where the use of a (single) substrate having a plurality of masks thereon is taught or suggested for use in an electron beam proximity exposure apparatus as presently claimed.

For the above reasons, it is evident that the Nishi reference does not teach each and every feature of the claimed invention nor does the reference provide any suggestion to modify the teachings therein to arrive at the claimed invention, and in fact, teaches away from the very combination proposed by the Examiner. Therefore, the rejections of the claims 1, 5 and 9, under § 102(e), and claims 2-4 and 6-8, under § 103(a), are improper and must now be withdrawn.

In view of the above arguments, each of the pending claims 1-9 are deemed to be in condition for allowance. However, should the Examiner find some issue to remain unresolved, or should any new issues arise, which could be eliminated through discussions with Applicants' representative, then the Examiner is invited to contact the undersigned by telephone in order that the further prosecution of this application can thereby be expedited.

Respectfully submitted,

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